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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Sanjiv Nanda

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EXAMINER

CAI, WAYNE HUU

ART UNIT

PAPER NUMBER

2617

NOTIFICATION DATE

DELIVERY MODE

08/05/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/628,955	Applicant(s) NANDA ET AL.	
	Examiner WAYNE CAI	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/27/09</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 27, 2009 has been entered.

Information Disclosure Statement

2. The information disclosure statement filed May 27, 2009 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Response to Arguments

3. Applicant's arguments filed May 27, 2009 have been fully considered but they are not persuasive.

The Applicant argues that Shiobara does not teach or suggest “determining a transmission deadline of the packets of data” because the term “transmission deadline” as defined in claims is distinguish from “margin time (deadline)” as taught or suggested by Shiobara. The Examiner respectfully disagrees because of the following reasons:

The term "deadline" is a common term and broadly interpreted as timeout or expiration. One skilled in the art can easily recognize that "transmission deadline of the packet" means the packet will be timed-out or expired in certain amount of time. Indeed, the “deadline” is calculated or understood as to be expired in certain amount of time with respect to the current or present time. For example, in IP world, if a node receives the packet has a time-to-live (TTL) value of 3. What it means is that from the current time or the present node when a node calculates or embeds the TTL value into a packet header, the packet can only be transmitted to the next 3 hops, and the packet will be timed-out by then. Another example, if the TTL is represented in term of time (e.g., 30 seconds), then after 30 seconds from the time the TTL value (30 seconds) was issued, the packet is expired. In other words, regardless whether the TTL is represented in terms of a number of hops or a time value, what it means is that the packet can only last maximum up to 3 hops, or 30 seconds starting from the time this TTL value was issued, which is considered as a present time at that moment.

In light of the Applicant's specification, the Applicant states that the term "transmission deadline" as set forth in claims is "deadline....associated with each packet based on the packet arrival time and the maximum permitted delay for that service (or flow)" (Specification paragraph 1023).

Based on the Applicant's definition of "transmission deadline", it should be clear to the Applicant that the Applicant's definition is consistent with the Examiner's interpretation of this term and/or as discussed above. Essentially, what the Applicant intends to claim is that in the next 30 seconds, which is the maximum permitted time, the packet is time-out or expired.

Similarly, as admitted by the Applicant at the first full paragraph of page 16, Shiobara teaches or suggests "transmission deadline" as a margin time T_{ds0} that is determined on the basis of the difference between time T_0 and the current timing. In other words, Shiobara teaches or suggests how much more time from the current time, the packet will be time-out or expired.

Based on the foregoing discussion, it should be clear to the Applicant that all the definition and interpretation from the Applicant, Shiobara's teachings, and Examiner's about the term "deadline" are consistent with one another. Hence, it should be clear that Shiobara's teachings of the term "deadline" reads on claimed limitation.

Furthermore, it is important to note that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

All other independent claims 9, 16, 24, 31 and 39 also recite related subject matter; therefore, they are also rejected and maintained based on the foregoing discussion.

With respect to newly added claims, please refer to the rejections below for further details.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-15, 47 and 48 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-15, 47 and 48 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent and recent Federal Circuit decisions indicate that a statutory “process” under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim recites a series of steps or acts to be performed, the claim neither transforms underlying subject matter nor is positively tied to another statutory category that accomplished the claimed method steps, and therefore does not qualify as a statutory process. For example, the method comprising the steps of determining packets of data for transmission from mobile station for a number of communication

Art Unit: 2617

services and a transmission deadline of each packet, arranging the packet in queue, and determining a data rate for transmission of packet of data is of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally, or without a machine.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 5, 9-11, 14, 16, 17, 20, 24-26, 31, 32, 35, 39, 40 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berruto (EP 0 627 827) in view of Shiobara (US 5,535,214). Note: Applicant's cited references.

Regarding claims 1, 16 and 39, Berruto discloses in a communication system, a method, apparatus and program for determining a data rate for reverse link communication from a mobile station to a base station comprising:

determining packets of data for transmission from the mobile station for a number of communication services (i.e., information stream output ready for transmission from mobile station as described at paragraph 0011, paragraphs 0017-0018);

determining a data rate for transmission of the packets of data based on the arrangement of said packets of data in said queue allowing for meeting the transmission

Art Unit: 2617

deadline for each of said packets of data (i.e., to calculate the data rate that allows to minimize or meet costs, which is transmission deadline, as described at paragraphs 0012, 0020, 0023 and 0032).

Berruto, however, does not expressly disclose:

determining a transmission deadline of each of said packets of data;

arranging the packets of data in a queue for transmission in accordance with said determined transmission deadline.

Shiobara discloses timely processing of transmission and reception requests in multi-node communication network. Shiobara also discloses:

determining a transmission deadline of each of said packets of data (i.e., to calculate a margin time or deadline at col. 7, lines 21-54);

arranging the packets of data in a queue for transmission in accordance with said determined transmission deadline (i.e., to arrange packets based on urgencies, deadline or timeout as described at col. 7, lines 30-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Berruto's invention and arrive at the present invention by including the steps of determining a transmission deadline of each of said packets of data and arranging the packets of data in a queue for transmission in accordance with said determined transmission deadline.

The motivation/suggestion for doing so would have been to allow effective use of the system resources while able to guarantee service to certain traffic classes.

Regarding claims 9 and 24, Berruto discloses in a communication system, a method and an apparatus for determining a data rate for reverse link communication from a mobile station to a base station comprising:

determining packets of data for transmission from the mobile station for a number of communication services (i.e., information stream output ready for transmission from mobile station as described at paragraphs 0011 and 0017-0018);

determining a number of data rates for transmission of the packets of data based on the number of possible queue arrangements (i.e., to calculate the data rate that allows to minimize or meet costs, which meets transmission deadline, as described at paragraphs 0012, 0020, 0023 and 0032. In addition, paragraph 0038 describes attempting to use different combinations to calculate a data rate).

Berruto, however, does not expressly disclose:

determining a transmission deadline of each of said packets of data;

arranging the packets of data in a queue for transmission in accordance with said determined transmission deadline.

Shiobara discloses timely processing of transmission and reception requests in multi-node communication network. Shiobara also discloses:

determining a transmission deadline of each of said packets of data (i.e., to calculate a margin time or deadline at col. 7, lines 21-54);

arranging the packets of data in a queue for transmission in accordance with said determined transmission deadline (i.e., to arrange packets based on urgencies, deadline or timeout as described at col. 7, lines 30-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Berruto's invention and arrive at the present invention by including the steps of determining a transmission deadline of each of said packets of data and arranging the packets of data in a queue for transmission in accordance with said determined transmission deadline.

The motivation/suggestion for doing so would have been to allow effective use of the system resources while able to guarantee service to certain traffic classes.

Regarding claim 31, Berruto discloses in a communication system, an apparatus for determining a data rate for reverse link communication from a mobile station to a base station comprising:

a processor in the mobile station for (fig. 1 illustrates a mobile including various electronic components, which reads on a processor):

determining packets of data for transmission from the mobile station for a number of communication services (i.e., information stream output ready for transmission from mobile station as described at paragraph 0011, paragraphs 0017-0018);

determining a data rate for transmission of the packets of data based on the arrangement of said packets of data in said queue allowing for meeting the transmission deadline for each of said packets of data (i.e., to calculate the data rate that allows to minimize or meet costs, which is transmission deadline, as described at paragraphs 0012, 0020, 0023 and 0032).

Berruto, however, does not expressly disclose:

determining a transmission deadline of each of said packets of data;
arranging the packets of data in a queue for transmission in accordance with said determined transmission deadline.

Shiobara discloses timely processing of transmission and reception requests in multi-node communication network. Shiobara also discloses:

determining a transmission deadline of each of said packets of data (i.e., to calculate a margin time or deadline at col. 7, lines 21-54);

arranging the packets of data in a queue for transmission in accordance with said determined transmission deadline (i.e., to arrange packets based on urgencies, deadline or timeout as described at col. 7, lines 30-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Berruto's invention and arrive at the present invention by including the steps of determining a transmission deadline of each of said packets of data and arranging the packets of data in a queue for transmission in accordance with said determined transmission deadline.

The motivation/suggestion for doing so would have been to allow effective use of the system resources while able to guarantee service to certain traffic classes.

Regarding claims 2, 17, 32, and 40, Berruto and Shiobara disclose all limitations recited within claims as described above. Berruto also discloses communicating said data rate from said mobile station to said base station (paragraph 0019. The Examiner further notes a communication from mobile station to base station

Art Unit: 2617

implicitly teaches or suggests a transmitter to specifically perform the transmission function).

Regarding claims 5, 20, 35, and 43, Berruto and Shiobara disclose all limitations recited within claims as described above. Berruto also discloses further comprising: determining whether available resources allows for allocation at said base station for transmission from said mobile station at said data rate (assessing a transmission rate as described at paragraph 0012 means determining available resources).

Regarding claims 10 and 25, Berruto and Shiobara disclose all limitations recited within claims as described above. Berruto also discloses wherein said number of determined data rates include a required data rate (i.e., considered as a typical data rate as described at paragraph 0010) and at least one congestion level data rate (i.e., to determine different data rate to meet the cost due to congestion as described at paragraph 0038).

Regarding claims 11 and 26, Berruto and Shiobara disclose all limitations recited within claims as described above. Berruto also discloses communicating said number of data rates from said mobile station to said base station (paragraphs 0010 and 0019).

Regarding claim 14, Berruto and Shiobara disclose all limitations recited within claims as described above. Berruto also discloses determining whether available resources allows for allocation at said base station for transmission from said mobile station at least one of said number of data rates (i.e., assessment sources as described at paragraphs 0012-0013 and 0026).

7. Claims 3, 4, 12, 13, 18, 19, 27-29, 33, 34, 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berruto (EP 0 627 827. Note: Applicant's cited reference) in view of Shiobara (US 5,535,214. Note: Applicant's cited reference), and further in view Sherman (US 2003/0161340).

Regarding claims 3, 18, 33, and 41, Berruto and Shiobara disclose all limitations recited within claims as described above. As discussed above in the rejections of independent claims, Berruto also discloses determining data rate for transmissions of the packets of data based on the arrangement of said packets of data in said queue. The combination of these references, however, does not expressly disclose determining duration.

In a similar endeavor, Sherman discloses a method and system for optimally serving stations on wireless LANS. Sherman also discloses determining duration (i.e., HC determines duration as described at paragraph 0040).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine these references altogether.

The motivation/suggestion for doing so would have been to optimize performance for efficient use of the medium.

Regarding claims 4, 19, 34, and 42, Berruto, Shiobara, and Sherman disclose all limitations recited within claims as described above. Sherman also discloses communicating said determined duration from said mobile station to said base station (i.e., to transmit duration of the slot and the CCI as described at paragraphs 0038-0040).

Regarding claims 12 and 27, Berruto and Shiobara disclose all limitations recited within claims as described above. As discussed above in the rejections of independent claims, Berruto discloses determining number of data rates for transmissions of the packets of data based on the arrangement of said packets of data in said queue. The combination of these references, however, does not expressly disclose determining duration.

In a similar endeavor, Sherman discloses a method and system for optimally serving stations on wireless LANS. Sherman also discloses determining duration (i.e., HC determines duration as described at paragraph 0040).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine these references altogether.

The motivation/suggestion for doing so would have been to optimize performance for efficient use of the medium.

Regarding claims 13 and 28, Berruto, Shiobara, and Sherman disclose all limitations recited within claims as described above. Sherman also discloses communicating said determined duration from said mobile station to said base station (i.e., to transmit duration of the slot and the CCI as described at paragraphs 0038-0040).

Regarding claim 29, Berruto, Shiobara, and Sherman disclose all limitations recited within claims as described above. Berruto also discloses determining whether available resources allows for allocation at said base station for transmission from said mobile station at least one of said number of data rates (i.e., assessment data rate as described at paragraph 0012).

8. Claims 6, 15, 21, 30, 36 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berruto (EP 0 627 827. Note: Applicant's cited reference) in view of Shiobara (US 5,535,214. Note: Applicant's cited reference) and further in view of Vadgama (US 2003/0083069).

Regarding claims 6, 21, 36, and 44, Berruto and Shiobara disclose all limitations recited within claims as described above, but do not expressly disclose indicating a congestion level alert to said mobile station when said determining available resources disallow for allocation at said base station for transmission from said mobile station at said data rate.

In a similar endeavor, Vadgama discloses cell selection. Vadgama also discloses indicating a congestion level alert to said mobile station when said determining available resources disallow for allocation at said base station for transmission from said mobile station at said data rate (MS obtains congestion levels as described at paragraphs 0101 and 0122).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Berruto and Shiobara's invention and arrive at the present invention by including an indication of a congestion level.

The motivation/suggestion for doing so would have been to optimize efficient usage of cell capacity.

Regarding claims 15 and 30, Berruto and Shiobara disclose all limitations recited within claims as described above, but do not expressly disclose indicating to said mobile station when said determining available resources allows for allocation at said base station for transmission from said mobile station at least at one of said data rates.

In a similar endeavor, Vadgama discloses cell selection. Vadgama also discloses indicating to said mobile station when said determining available resources allows for allocation at said base station for transmission from said mobile station at least at one of said data rates (i.e., to share transmission channel from base stations to indicate which base station is better, which means have available resource for use by the mobile stations as described at paragraph 0122).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Berruto and Shiobara's invention and arrive at the present invention by including an indication of available resources allowed for allocation.

The motivation/suggestion for doing so would have been to optimize efficient usage of cell capacity.

9. Claims 7, 22, 37 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berruto (EP 0 627 827. Note: Applicant's cited reference) in view of Shiobara (US 5,535,214. Note: Applicant's cited reference) and Vadgama (US 2003/0083069), and further in view of Holden (US 6,134,218. Note: Applicant's cited references).

Regarding claims 7, 22, 37, and 45, Berruto, Shiobara, and Vadgama disclose all limitations recited within claims as described above, but do not expressly disclose dropping at least a packet of data of said packets of data in said queue to determine a new queue of packets of data and determining a new data rate for transmission of said new queue of packets of data, wherein said new data rate is lower than said data rate.

In a similar endeavor, Holden discloses many dimensional congestion detection system and method. Holden also discloses dropping at least a packet of data of said packets of data in said queue to determine a new queue of packets of data (col. 9, lines

Art Unit: 2617

29-34) and determining a new data rate for transmission of said new queue of packets of data, wherein said new data rate is lower than said data rate (col. 9, lines 45-55).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the cited references and arrive at the present invention by dropping a packet and determining a new data rate.

The motivation/suggestion for doing so would have been to allow effective use of system resources while able to guarantee service to certain traffic classes.

10. Claims 8, 23, 38 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berruto (EP 0 627 827. Note: Applicant's cited reference) in view of Shiobara (US 5,535,214. Note: Applicant's cited reference), Vadgama (US 2003/0083069 and Holden (US 6,134,218 Note: Applicant's cited references) and further in view of Sherman (US 2003/0161340).

Regarding claims 8, 23, 38, and 46, Berruto, Shiobara, Vadgama and Holden disclose all limitations recited within claims as described above. As discussed above, Berruto also discloses determining data rates for transmissions of the packets of data based on the arrangement of said packets of data in said queue. The combination of references, however, does not expressly disclose determining a new duration.

In a similar endeavor, Sherman discloses a method and system for optimally serving stations on wireless LANS. Sherman also discloses determining duration (i.e., HC determines duration as described at paragraph 0040).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine these references altogether.

The motivation/suggestion for doing so would have been to optimize performance for efficient use of the medium.

11. Claims 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berruto (EP 0 627 827. Note: Applicant's cited reference) in view of Shiobara (US 5,535,214. Note: Applicant's cited reference), and further in view of Bantz et al. (hereinafter "Bantz", US 5,394,433).

Regarding claim 47, Berruto and Shiobara disclose all limitations recited within claims as described above. Shiobara also discloses wherein updated information relating to packet delay deadlines are available at the mobile station (i.e., having the knowledge of urgency as described at col. 6, lines 30-60). The combination of Berruto and Shiobara, however, does not expressly disclose wherein updated information relating to the queue length available at the mobile station.

In a similar endeavor, Bantz discloses a control system for automated management of frequency-hopping in a radio network. Bantz also discloses wherein updated information relating to the queue length available at the mobile station (col. 9, line 55 col. 10, line 2).

Art Unit: 2617

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Berruto and Shiobara's invention by including updated information relating to the queue length available at the mobile station.

The motivation/suggestion for doing so would have been to minimize the delivery of packet to end users.

Regarding claim 48, Berruto and Shiobara disclose all limitations recited within claims as described above, but do not expressly disclose wherein a resource manager allocating the negotiated Quality of Service is performed at the base station.

In a similar endeavor, Bantz discloses a control system for automated management of frequency-hopping in a radio network. Bantz also discloses wherein a resource manager allocating the negotiated Quality of Service is performed at the base station (i.e., base station allocate slots for mobile transmission, which is allocating negotiated QoS as described at col. 7, lines 47-59).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Berruto and Shiobara's invention by including a resource manager allocating the negotiated Quality of Service is performed at the base station.

The motivation/suggestion for doing so would have been to ensure that mobile stations have enough resources for transmission and also meet the channels reliability and QoS requirements.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WAYNE CAI whose telephone number is (571)272-7798. The examiner can normally be reached on Monday-Thursday from 8:00 a.m. to 6:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wayne Cai/
Examiner, Art Unit 2617